



MISSOURI DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR LOWERED-FLOOR ACCESSIBLE MINIVAN

1. The intent of these specifications is to describe a standard width type vehicle that will be modified, restructured and assembled by using best quality materials, components and workmanship in accordance with sound engineering principles and manufacturing practices to provide safe and reliable highway and city transportation for ambulatory and non-ambulatory adult passengers.

SHODDY AND INFERIOR QUALITY MATERIALS AND WORKMANSHIP WILL NOT BE ACCEPTABLE

MoDOT reserves the right to conduct in-plant inspections.

2. Acceptable Makes and Models: Passenger Vans (cargo vans **not** acceptable)
2007 or 2008 Chevrolet Uplander/Pontiac SV6 Montana
2007 or 2008 Model Dodge/Chrysler Grand Caravan/Voyager
2007 or 2008 Model Ford Freestar
60% domestic content, final assembly point in USA
or approved equal

cargo vans **not** acceptable – due to the extreme chassis modification required to be done, these vehicles will have to be tested at the FTA's Altoona Bus Testing and Research Center and the testing report submitted to Missouri Department of Transportation with the bid. If the successful bidder fails to order a 2007 chassis (when supplied with a timely purchase order). They will have to supply a 2008 model at the bid price.
3. GVW Rating, Minimum 5,000 lbs.
4. Body Exterior: Shall have manufacturers standard items for the grill; grill frame, hubcaps, moldings around windows, doors, lamps, etc. Drip rails shall be installed above all doors to prevent water leakage into van. Each vehicle will be thoroughly water tested before delivery. OEM drip rails are acceptable.
5. Body Interior: Standard comfort and convenience items. They shall be all manufacturers standard items and equipment, plus all additions or substitutions listed. If special option package is required with minor items not specified, include in your bid price. Read carefully, do not deviate.

Headliner or Ceiling: Shall be full length for driver and passenger area. Manufacturer's standard.

Paneling and Trim: To be complete on all doors, walls, ends and corners.

The doors, walls, ends, corners will be covered with factory installed trim and panels. Only factory trim is acceptable. The material shall be fire resistant, sanitary and easily cleaned. There will be a full-length headliner located above driver and passenger compartments.

Body Specifications: Conversion of a minivan by modifying the existing roof, sidewalls, or floor, shall require the construction of an internal reinforcement of equal or greater strength that does not destroy or reduce the original integrity or strength of the vehicle against impact. All metal components that are added shall be professionally seam welded, and shall be made corrosion resistant through a commercial primer application or the use of stainless steel material.

Sealant, Rust proofing, and Undercoating: All exposed floor attachment seams shall be sealed with a high rated butyl caulk or equal. The entire surface of exterior lowered floor shall have a rust inhibiting coating, such as an epoxy primer base, applied to cover all welded areas, and then a fresh application of undercoating over the entire surface. Undercoating shall comply with current Federal flammability standards.

Passenger Doors and Step wells: The minivan shall have standard OEM driver and passenger front doors, one manual left side rear passenger door. (lowered to floor level), and one manual right side mobility aid accessible rear passenger door. The manual left side sliding passenger door shall be as provided per OEM, extended to floor level providing a minimum entry height of 56". The manual right side mobility aid accessible entry door shall offer a minimum ground height. Door extensions shall be constructed of stainless or galvanized steel. Both sliding doors shall have a locking mechanism to securely hold doors in open position when vehicle is on a hill. Vehicle will have a "door ajar" warning system.

Passenger Door Tracks: Sliding Doors must have reinforced glides with an added stop brace to prevent doors from sliding off track. Door tracks shall be reinforced or strengthened beyond OEM standards as needed in all areas of contact with sliding door arms.

Sliding Passenger Door Arms/Brackets: Reinforcement of the sliding door components shall at a minimum be adequate to support the excess weight created by the door extensions. Under normal closure conditions, there should be no evidence of door track flexing or wobbling.

Locks: All doors shall be lockable by key or remote from the exterior. All access doors shall have power or keyed locks; all door locks shall be keyed alike. Door locks may also be controlled by a remote.

Rear Door Emergency Exit: The rear cargo door shall be provided with a quick release, manual override for opening the door from inside the vehicle. The vehicle override device shall be mounted on the inside of the rear door to prevent accidental release.

Ground Effects: Lower body panels shall be added to the vehicle on both the driver and passenger sides of the vehicle. Panels to be constructed of formed fiberglass or high impact ABS plastic, painted to match the exterior color of the vehicle.

Line Protection: All metal and rubber fluid lines beneath the vehicle that are altered or exposed as a result of floor modification shall be protected from road damage.

<u>Dimensions:</u>	Minimum Wheelbase	119 inches
	Minimum overall length	200 inches
	Minimum overall width (w/o mirrors)	72 inches
	Minimum interior floor width at center Of side sliding door	60 inches

Load Capacities: GVWR of 5,000 lbs.
The vehicle shall have a minimum payload of 1,000 lbs. (minimum)
The front GAWR shall be 2,500 lbs. (minimum)
The rear GAWR shall be 2,500 lbs. (minimum)

Engine: Shall be V-6 design with minimum 150 hp.

Cooling System: will use a thermostatically controlled fan and be filled with permanent ethylene glycol base antifreeze for engine protection to –20 degrees Fahrenheit.

Transmission: Four-speed automatic with overdrive.

Suspension: The vehicle shall utilize the OEM front and rear heavy-duty suspension.

Steering: Power-assisted, rack and pinion type with a tilt steering wheel and cruise control.

Brakes: Power-assisted, front disc, rear drum, four-wheel with anti-lock feature.

Sliding doors: Vehicle shall be equipped with dual, sliding side doors.

Wheels and tires: Tires shall be tubeless, radial design, black sidewall, P215/70915 or larger as recommended by the OEM for GVWR compatibility. A compact size spare tire shall be included along with jack and lug wrench.

Bumpers: Shall use original OEM front and rear painted bumpers. No bumper modifications shall be allowed.

Electrical System: Battery will be a single 600 cold cranking amp capacity with a 105 minimum amp rated alternator.

Instrumentation – **Shall include the following**: Speedometer with odometer and trip odometer with reset feature. Fuel gauge. Oil pressure gauge or indicator, water temperature gauge or light and voltmeter/ammeter or warning light.

Glass: The windshield shall be tinted from the upper frame to 6" down as measured from outside the vehicle. All side and rear glass shall be dark sunscreen type. No after market tinting will be accepted. Drivers side and co-pilots seat window glass will be standard factory tint.

Exterior Lighting: All exterior standard lights, to include headlights, parking lights, tail and brake lights, turn signals, clearance lights, backup lights, daytime running lamps, and rear collision avoidance light shall be used. (OEM lighting is acceptable)

Heating and Air Conditioning System: A dual front/rear OEM air conditioning/heating system shall be used. This unit shall have separate fan controls, (3 speed minimum), for the front and rear. The defroster shall be capable of clearing all moisture from the windshield and side glass of each front door. A rear electric defroster shall be supplied.

CONVERSION SPECIFICATIONS

Dimensions:

Maximum height	74 inches
Approximate height	72.5 inches
Minimum height (floor to ceiling at center)	57 inches
Maximum height of floor at ramp door	9.5 inches
Minimum clear ramp door opening width	32 inches
Minimum wheelchair ramp length (approximately)	54 inches
Minimum ground clearance (measured from lowest part of vehicle)	5.5 inches
Minimum ground clearance	5 inches
Minimum passenger compartment length (approximately) (measured from rear of driver's seat base to rear seat riser)	56 inches

Body: The structure shall be adequately reinforced at all joints and corners to carry loads up to the GVWR. Shall be able to withstand road shock under normal driving conditions without deformation or separation. Shall be tightly sealed to eliminate drafts and water leaks at body, floor, and roof joints. The vehicle shall be fully undercoated with a non-flammable material. The vehicle, at maximum GVWR, at static conditions with any one wheel on a 6 inch high block or in a 6 inch deep hole, shall not exhibit deformation or reflection that impairs operation of doors, windows, wheelchair ramp, or other mechanical elements.

Paint: Modified exterior surfaces requiring painting shall be thoroughly cleaned, primed, and painted with a high-grade automotive paint matching the OEM mixture.

Fuel Tank: Shall have a minimum capacity of 18 gallons.

Suspension Modifications: Rear suspension shall utilize automatic, load-leveling, or air-ride system. Shall incorporate electronic level sensor and dual, individually controlled air bags for reduced body roll. Shall be able to maintain a minimum ground clearance of (5) five inches measured from lowest part of the vehicle, under all load conditions up to the GVWR limits. Shall maintain original front drive axle specifications for the operating angle of the constant velocity, (CV), joints. The manufacturer following conversion shall perform a complete four-wheel suspension alignment. Rear OEM air shocks may be substituted for air bags.

Lowered Floor: The factory floor shall be lowered approximately 12 inches from the base of the firewall to the area immediately in front of the rear axle. This assembly shall be stainless steel, galvanized, or aluminized metal, (16 gauge minimum), able to meet or exceed the 1000-hour salt spray rating. Shall be joined to the body frame members in a manner that provides a leak-proof floor. The floor shall be lowered through the threshold of each sliding door, while the door itself shall be extended to seal.

Floor Covering: Anti-skid flooring throughout. A vapor-insulating barrier of ¼" marine grade plywood shall be applied over the lowered metal floor. The flooring shall be laid without gaps or openings. Seams shall be heat welded so as to be tight against any influx or seepage of moisture. Heat welding only applies when mating of similar surfaces. The floor covering shall be thoroughly cemented into position throughout the entire area. The floor covering shall be a ribbed or slip resistant transit grade quality with a minimum thickness of 2.2 mm. Quality waterproof seal between wall and floor junction is acceptable.

Mobility Aid Ramp: The vehicle shall be equipped with a manually operated, non-swing or swing type mobility access ramp, which folds and unfolds through the right side door. The fold and unfold motion of the ramp must be counter balanced so that the force exerted by the operator does not exceed 15 lbs. The installed ramp shall not obstruct the view of the driver through any vehicle window. The ramp shall have a minimum usable width of 30: and a slope meeting the requirements of ADA, 49 CFR 38.23b(2). The ramp surface shall be continuous and made skid resistant through powder coating. It shall have no protrusions from the surface greater than ¼", and shall accommodate both four-wheel and three-wheel mobility aids. The ramp shall support a load of 600 lbs. Each side of the ramp shall have protective barriers at least two (2) inches high to prevent mobility aids from rolling off of the ramp edge.

Control Interlock: The ramp doors shall be interlocked with the vehicle emergency brake or transmission to ensure the vehicle cannot be moved when the ramp is deployed. This interlock will meet all ADA requirements of 49 CFR 38.23b(2).

Wheelchair Securement Area for All Units:

Positive fastening wheelchair lock-in devices shall be provided for each wheelchair position.

Each securement device will consist of a four point, belt hold down system complete with all belts, hardware and fittings required to make a complete wheelchair securement device.

All securements devices will be easy to attach to floor or mobility aid with mobility aid in place.

Retractable Wheelchair Securement System

The wheelchair securement tie down belts shall be retractable into a protected steel housing and eliminate the need for belt cleaning and storage. The belt housing and mechanical retractor shall be designed for a minimum of five (5) year lift. Belts will incorporate a S-hook design to secure belts to the mobility aid.

The location of the rear belts shall be positioned to allow the driver to secure the wheelchair frame between the rear wheelchair wheels. The retractable belts shall feature positive locking mechanisms. The belts shall be equipped with a release tab to release tension on the belts when unfastening the wheelchair and to take up the excess belt when securing the wheelchair.

The retractable belts shall feature positive locking mechanisms. Once the front belts have been attached to the wheelchair frame, a tension knob attached to the belt housing shall be applied to bring the wheelchair passenger and chair into a state of securement. The front belts shall be designed for a minimum life of five (5) years. Front belts may also utilize a flush floor mount L-Track with flanged edges for securement to the floor. Floor tracks shall be a minimum of 48" apart (center to center). Sure-Lok Titan tie-downs are an "approved equal".

The four belts will attach to the wheelchair frame and to a series of tracks securely attached to, and recessed in, the floor of the van. Each track will have evenly spaced slots for adapting to any size wheelchair. All wheelchair securement tracks will be attached to the floor with Grade 5 or higher bolts that go through the floor. These tracks will be securely attached with adequate nuts and washers to meet all requirements of ADA 49 CFR 38.23 and will run the entire width of the securement area(s). Welding of tracks will be acceptable provided they meet all pull tests.

There shall be provisions for storing all of the hardware and belts in a pouch on the inside rear wall of the van, or in durable metal or plastic containers (these will be mounted securely in the vehicle interior). Each securement area will be labeled as such.

Easy to secure and release seat belts and shoulder straps which will encompass both the wheelchair and occupant shall be included. There will also be included a Torso Belt for each wheelchair passenger and four 16" "Quick Straps" for each securement location.

All bolts used in wheelchair securement modification shall be a grade 5 or higher. All wheelchair securement devices and installation will meet ADA requirement 49 CFR 38.23.

Insulation: A flame-retardant insulation material equivalent to that supplied by the OEM shall be used to provide sound absorption and a thermal barrier.

Interior: Interior walls and headliner shall provide a finish that is durable, easily cleaned, and coordinates with the overall interior scheme of the vehicle.

Seating:

The seating arrangement shall be as indicated by the attached floor plan.

All seats (except drivers) will be vinyl covered with a level 3 material. Driver's seat will be cloth covered. After market seats must be vinyl.

A adjustable driver's seat shall meet the following criteria;

- fore and aft adjustment of at least 8 inches.
- shall recline.
- shall be equipped with a receiver buckle for a (3) three-point lap/shoulder restraint belt.

Fixed front passenger seat, if applicable (OEM removable seat is acceptable)

- shall have forward and aft adjustability of (8) eight inches.
- shall recline.
- shall be equipped with a receiver buckle for a (3) three-point lap/shoulder restraint belt.

Removable front passenger seat – floor plan AAA

- the seat shall be removable so a wheelchair passenger can occupy the front seat location.
- The seat shall be mounted on a base with wheels for the ease of removal and installation.
- The seat shall be secured to the floor by means of (4) four pins mounted on the seat base and slots in the floor.
- Each of the (2) two rear guide slots shall incorporate a latch mechanism operated by means of a single, quick-release handle connected to the latch.
- The seat shall be equipped with a receiver buckle for a (3) three-point lap/shoulder restraint belt.
- A (4) four-point wheelchair securement system, which also will accommodate a (3) three-point lap/shoulder restraint belt, will be installed at this location.

Fold A-Way Seat Requirements

- fold-A-Way type seats shall meet all dimensional, structural, and testing requirements of the standard seat specification.
- all seats shall be forward facing for ambulatory passengers and fold against the wall when wheelchair space is required.
- in the folded position, the seat may extend into the van no further than necessary at 90 degrees to maximize space for wheelchair loading and positioning. A free 48" X 30" securement area must be maintained.
- fold-A-Way seats will meet all required FMVSS.
- fold-A-Way type seats shall be Braun 125, Freedman (3) three step fold-a-way, C. E. White Model ADA-35, American seating E-Z fold, or approved equal.

Rear Bench Seat

- the standard, folding, (2) two-passenger rear bench seat shall be utilized.
- rear seat is utilized; passenger restraint belts and latches will be in place for each designated seating position.

Foot Rest

- there should be fold-up footrests placed just ahead of the rear most bench seat.
- these footrests shall be covered with a non-skid surface.
- A modified seat height will also be acceptable in lieu of a footrest.

Emergency Exit

- the rear bench seat shall fold forward to facilitate exiting the vehicle through the rear door in an emergency.
- the rear door shall be clearly marked as an emergency exit with instructions as well.
- Emergency door will have lighting and signage that meet FMCSR 393.92

Electrical

- wiring shall comply with the following provisions
 - ✓ all wiring other than the provided by the chassis OEM shall be PVC or better insulated and color-coded for positive identification.
 - ✓ precautions shall be taken to prevent damage from heat, water, solvents, and chafing by proper routing, clamping, and the use of grommets or suitable elastomeric cushion materials.
 - ✓ all vehicles shall be wired identically
 - ✓ complete wiring schematic diagrams shall be furnished covering all electrical equipment and circuitry, complete with wiring color codes.
- Interior Lighting
 - ✓ a dash mounted warning light indicating the wheelchair ramp door is open shall be included.
 - ✓ lighting producing a minimum of (2) two-foot candles of illumination on entrance ramp area shall be provided.
 - ✓ wheelchair ramp area lighting shall be activated whenever the door is open.
 - ✓ lights and signage on any door considered an emergency exit that meet

FMCSR 393.92

- Exterior Lighting
 - ✓ all exterior and interior lighting shall be in accordance with Federal Motor Carrier safety Regulations (49 CFR 393.11).

Safety Equipment – All securely mounted (in vehicle rear)

- Blood Borne Disease Kit – In a durable metal or plastic box including the following nine (9) items:

latex gloves	CPR Mask
goggles	apron
disinfectant wipes	absorbent
scoop	I.D. tag
red plastic bag	
- First Aid Kit
 - ✓ a 16 unit or greater kit shall be provided in a durable metal or plastic box will be secured in the vehicle.
 - ✓ shall be located in rear storage container.
- Fire Extinguisher
 - ✓ a 5-pound or greater type BC unit shall be provided.
 - ✓ shall be secured by means of a mounting bracket to the rear storage container.
- Reflectors
 - ✓ (3) three folding triangular red reflectors with storage box shall be provided with 3 LED warning lights (Tri Alert or approved equal).
 - ✓ this box shall be secured and located in the rear of the vehicle
- Back-up alarm
 - ✓ an electrically operated device that produces an intermittent audible signal when the vehicle's transmission is shifted to reverse shall be provided.
- Seat Belt Cutter
 - ✓ mounted within reach of the driver.

Miscellaneous items:

- Manuals
 - ✓ in addition to the vehicle OEM owner's manual, a manual prepared by the manufacturer, which contains all of the pertinent operating, and service instructions shall be provided with each vehicle.
 - ✓ the instructions will cover all components and accessories added or modified during the conversion including the wheelchair ramp.
- Conversion Warranty
 - ✓ the conversion shall be warranted against "rust through" damage, (including surface rust), to metal components of the installed floor and ramp, by replacement or repair, for a period of (3) three years or unlimited mileage.

- ✓ all other components of the conversion shall be warranted, by repair or replacement, for a period of 36 months from the in-service date or 36,000 miles, whichever occurs first.

The following shall be furnished and included with your bid:

- All bidders shall describe and furnish a complete detailed listing of the vehicle, requested drawings and modifications of the equipment they propose to furnish.
- A detailed drawing showing interior floor plan, dimensions and seating arrangements shall be included.
- A SCHEMATIC OF ANY INSTALLED WIRING SHALL BE FURNISHED WITH EACH VEHICLE
- A guarantee that the chassis manufacturer's warranty will be in effect at the time of delivery and acceptance.

A copy of the warranty on the air conditioning, (heating and cooling assemblies), wheelchair lift If a 2006 model cannot be furnished, a 2007 must be supplied at the bid price. This will only be required if the vendor receives a purchase order in a timely manner and fails to order a chassis.

Color

- Exterior – to be standard color at the time purchase orders are issued. (white plus one other OEM color is acceptable).
- Interior – the interior trim, upholstery, seat belts, visors, and etc., will be color keyed to exterior color.

Advertisements

- Decals all other forms of dealer advertisements will not be allowed.
- Exceptions to specifications must be clearly noted and included with your bid for consideration.

All hardware to attach folding seats to the floor shall be recessed to prevent tripping and stumbling.

The bidder will supply with the bid, the following items:

- ✓ An itemized list of foreign produced parts or components used in the manufacturing of the vehicle.
- ✓ The estimated cost for each item.
- ✓ The estimated total percent of foreign components used in manufacturing of the vehicle.
- ✓ One copy of report conducted by FTA's Altoona Bus Testing Facility.

Floor Plan Descriptions

FLOOR PLAN AAA - Will provide one wheelchair position in middle of van, with a two-passenger fold-a-way seat in the securement location to be utilized if there is no

wheelchair. A folding three-passenger bench seat will be in the rear and the standard right front passenger seat will be utilized.

FLOOR PLAN BBB – This floor plan will transport two wheelchairs, one in the right front and one in the middle. The middle securement area will have a two-passenger fold-away seat to be utilized if there is no mobility aid. The three-passenger rear bench seat will fold forward for access to the rear door as needed.

If there is a conflict between the written specification and the floor plan diagram, the written narrative controls.

Bidder will supply a vehicle that meets all Federal Motor Carrier Safety regulations.

Include as an option on all floor plans. Safety Vision SV 5000, Backing Vision BV 1350, Intermotive Hawkeye HRAX401-A (or approved equal) Backing Vision System.

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